Volunteer Lake Assessment Program Individual Lake Reports

NORTHWOOD LAKE, NORTHWOOD, NH

MORPHOMETRIC DATA

Watershed Area (Ac.):	15,384	**Max. Depth (m):**	6.3	**Flushing Rate (yr^{1})**	3.9
Surface Area (Ac.):	687	**Mean Depth (m):**	3.1	**P Retention Coef:**	0.53
Shore Length (m):	13,000	**Volume (m^3):**	8,488,000	**Elevation (ft):**	514

TROPHIC CLASSIFICATION

Year	Trophic class
1980	MESOTROPHIC
2000	MESOTROPHIC

KNOWN EXOTIC SPECIES

Variable Milfoil

The Waterbody Report Card tables are generated from the 2012 305(b) report on the status of N.H. waters, and are based on data collected from 2001-2011.

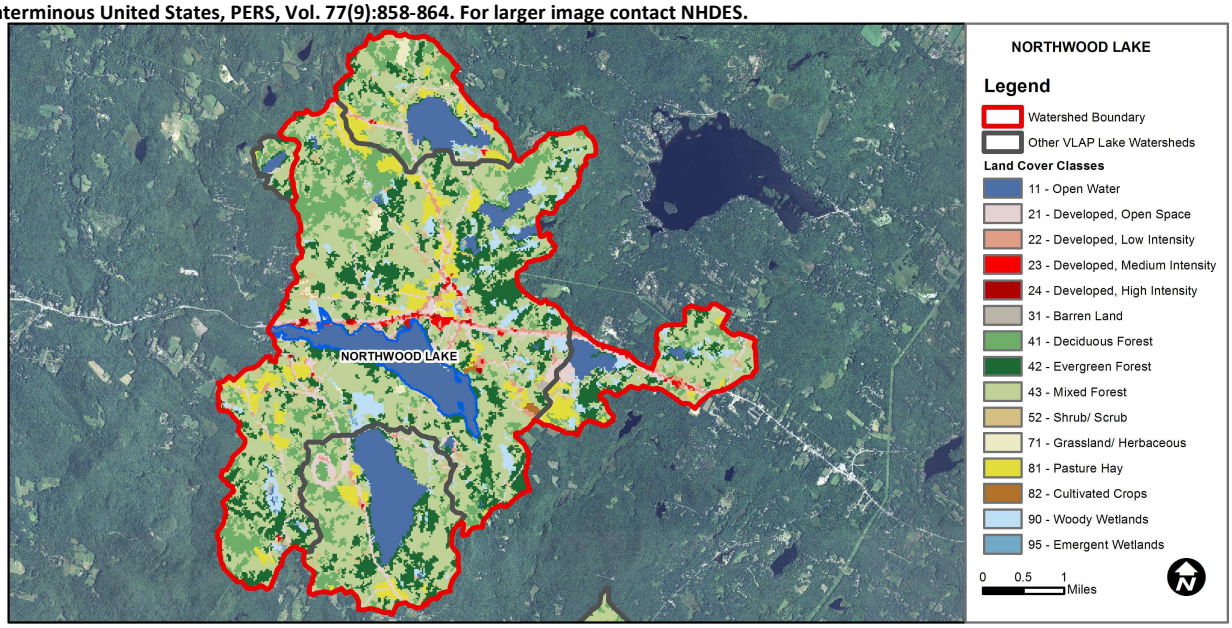
Designated Use	Parameter	Category	Comments
Aquatic Life	Phosphorus (Total)	Cautionary	<5 samples and median is > threshold. More data needed.
	pH	Bad	>10%, with a minimum of 2, samples exceed criteria, with 1 or more by a large margin.
	D.O. (mg/L)	Encouraging	< 10 samples and no exceedance of criteria. More data needed.
	D.O. (% sat)	Cautionary	< 10 samples and 1 exceedance of criteria. More data needed.
	Chlorophyll-a	Good	>/=5 samples and median is < threshold but > 1/2 threshold value.
Primary Contact Recreation	E. coli	Bad	>/=1 exceedance(s) of geometric mean criterion and/or >/=2 exceedances of single sample criterion, with 1 or more >2X criteria.
	Chlorophyll-a	Very Good	At least 10 samples with 0 exceedances of criteria.

BEACH PRIMARY CONTACT ASSESSMENT STATUS

NORTHWOOD LAKE - LYNN GROVE ASSOCIATION BEACH	E. coli	Bad	>/=1 exceedance(s) of geometric mean criterion and/or >/=2 exceedances of single sample criterion, with 1 or more >2X criteria.
NORTHWOOD LAKE - CAMP WAH-TUT-CA BEACH	E. coli	Very Good	All bacteria samples <75% of geometric mean criteria, but not enough to calculate geometric mean. Or, all bacteria samples are < single sample criteria and calculated Geometric means are less than geometric mean criteria.
NORTHWOOD LAKE - TOWN BEACH	E. coli	Bad	>/=1 exceedance(s) of geometric mean criterion and/or >/=2 exceedances of single sample criterion, with 1 or more >2X criteria.

WATERSHED LAND USE SUMMARY

Fry, J., Xian, G., Jin, S., Dewitz, J., Homer, C., Yang, L., Barnes, C., Herold, N., and Wickham, J., 2011. Completion of the 2006 National Land Cover Database for the Conterminous United States, PERS, Vol. 77(9):858-864. For larger image contact NHDES.



Land Cover Category	% Cover	Land Cover Category	% Cover	Land Cover Category	% Cover
Open Water	11.4	Barren Land	0.13	Grassland/Herbaceous	0.57
Developed-Open Space	5.57	Deciduous Forest	11.28	Pasture Hay	5.87
Developed-Low Intensity	1.69	Evergreen Forest	15.9	Cultivated Crops	0.13
Developed-Medium Intensity	0.71	Mixed Forest	39.73	Woody Wetlands	4.04
Developed-High Intensity	0.09	Shrub-Scrub	2.48	Emergent Wetlands	0.29

VOLUNTEER LAKE ASSESSMENT PROGRAM INDIVIDUAL LAKE REPORTS
NORTHWOOD LAKE, NORTHWOOD, NH
2012 DATA SUMMARY

OBSERVATIONS AND RECOMMENDATIONS (*Refer to Table 1 and Historical Deep Spot Data Graphic)*

- **CHLOROPHYLL-A:** Chlorophyll levels remained stable throughout the summer and were less than the NH lake median. Historical trend analysis indicates a relatively stable chlorophyll level since monitoring began.
- **CONDUCTIVITY/CHLORIDE:** Conductivity was generally elevated at all stations, especially Horse Farm. Chloride levels, although low, were greater than the NH lake median.
- **E. COLI:** E. coli levels were all below state standards for surface waters, however were elevated in Rt. 4 E Inlet, Flat Meadows Brook and Rt. 107 Inlet particularly after the July rain event. Agricultural activities are prevalent in the sub watersheds near these tributaries.
- **TOTAL PHOSPHORUS:** Deep spot phosphorus levels were low and less than the NH lake median. Historical trend analysis indicates a relatively stable epilimnetic (upper water layer) phosphorus trend since monitoring began. Phosphorus levels were elevated in Bridge Inlet, Rt. 4 E and W Inlets, Flat Meadows Brook, and Lower WTC Inlet in July and/or August following periods of significant rainfall. Turbidity was slightly elevated as well and sediment was noted in some samples which may have contributed to the elevated phosphorus.
- **TRANSPARENCY:** Transparency levels were good and higher than the NH lake median. Historical trend analysis indicates a relatively stable transparency since monitoring began.
- **TURBIDITY:** Turbidity levels were slightly elevated in Bridge Inlet, Flat Meadows Brook, Horse Farm, Rt. 4 E Inlet, Town Beach, and Old Dump Rd on one or several sampling events following significant rainfall. Turbidity was elevated in Tasker Shore Dr. sample due to granite cutting wastewater being discharged to a culvert. Follow up investigation notified property owners who were unaware of the problem and will fix it.
- **PH:** pH levels less than desirable and potentially critical to aquatic life.
- **RECOMMENDED ACTIONS:** There are a variety of agricultural practices in the watershed that may be contributing to elevated E. coli, turbidity and phosphorus levels in the tributaries. Contact the Dept. of Agriculture to take a tour of the properties and provide technical expertise to property owners to reduce pollutant loads during storm events. Keep up the great work!

Table 1. 2012 Average Water Quality Data for NORTHWOOD LAKE

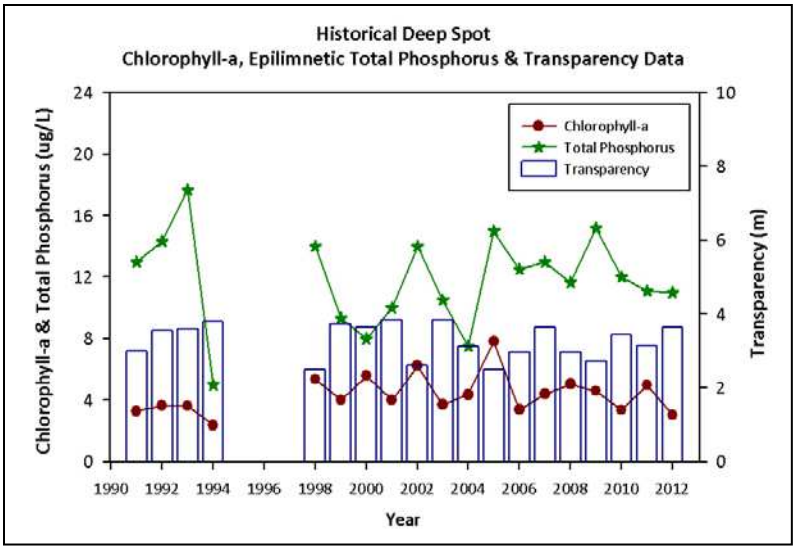
Station Name	Alk. mg/l	Chlor-a ug/l	Chloride mg/l	Cond. uS/cm	E. Coli #/100ML	Total P ug/l	Trans. m NVS	Trans. m VS	Turb. ntu	pH
113 Lake Shore Dr				75.3	8	10			1.02	6.48
Bridge Inlet			11	77.5	47	28			1.86	6.23
Flat Meadows Brook				76.7	92	30			2.39	6.08
Horse Farm			21	208.3		11			5.76	6.93
Lower WTC Inlet			3	37.9	66	47			1.21	5.11
Old Dump Rd			11	75.6	22	15			1.87	6.83
Outlet			12	72.9	11	15			1.29	6.53
Pleasant Pd Inlet			9	64.4	58	19			1.15	6.45
Rte 107 Inlet			14	83.3	192	19			0.96	5.45
Rte 4 E Inlet			14	94.1	226	36			2.13	6.42
Rte 4 W Inlet				63.4	30	27			1.72	5.57
Deep Epilimnion	3.95	3.05	12	74.5		11	3.65	5.23	1.16	6.40
Deep Hypolimnion				74.3		11			0.95	6.32
Tasker Shore Dr									1000	
Town Beach				74.8	26	16			2.18	6.67

NH Water Quality Standards: Numeric criteria for specific parameters. Results exceeding criteria are considered a water quality violation.
Chloride: < 230 mg/L (chronic)
E. coli: > 88 cts/100 mL – public beach
E. coli: > 406 cts/100 mL – surface waters
Turbidity: > 10 NTU above natural level
pH: 6.5-8.0 (unless naturally occurring)

NH Median Values: Median values for specific parameters generated from historic lake monitoring data.
Alkalinity: 4.9 mg/L
Chlorophyll-a: 4.58 mg/m^3
Conductivity: 40.0 uS/cm
Chloride: 4 mg/L
Total Phosphorus: 12 ug/L
Transparency: 3.2 m
pH: 6.6

HISTORICAL WATER QUALITY TREND ANALYSIS

Parameter	Trend	Explanation
Chlorophyll-a	Stable	Data not significantly increasing or decreasing.
Transparency	Stable	Data not significantly increasing or decreasing.
Phosphorus (epilimnion)	Stable	Data not significantly increasing or decreasing.



This report was generated by the NH DES Volunteer Lake Assessment Program (VLAP). For more information contact:
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